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Abstract
In recent years, human capital has received a lot of concern from economists. Many studies have been conducted to find out what this capital really is and how it relates to other economic factors. In general, economists believe in the importance of human capital investment and its positive correlation with the productivity of a worker. However, there have not been many research papers on the impact of an individual's human capital on the efficiency of the organization. Therefore, I would like to conduct research that explores this relationship in a firm. It is undeniable that a president is the key person of a firm because he or she sets the vision and makes important decisions. This research aims to find out how different characteristics of chairmen's human capital affect the outcomes of companies and to what level. This research project is unique because there have not been any similar ones focusing on Vietnamese firms. Vietnam is chosen for two reasons. First, Vietnam has the highest percentage (97%) of people who rank managers as important or very important to the success of a company which makes it more likely to believe in the existence of a relationship between human capital of the chairmen and performance of firms (Wakerfield et al., 2016). Second, Vietnam is a newly opened market that is receiving increasing attention globally so that this research can be helpful for those who are considering investing in Vietnamese firms.

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The relationship between human capital of presidents and performance of firms in Vietnam

Thanh Vu

I. Introduction

In recent years, human capital has received a lot of concern from economists. Many studies have been conducted to find out what this capital really is and how it relates to other economic factors. In general, economists believe in the importance of human capital investment and its positive correlation with the productivity of a worker. However, there have not been many research papers on the impact of an individual's human capital on the efficiency of the organization. Therefore, I would like to conduct research that explores this relationship in a firm. It is undeniable that a president is the key person of a firm because he or she sets the vision and makes important decisions. This research aims to find out how different characteristics of chairmen's human capital affect the outcomes of companies and to what level.

This research project is unique because there have not been any similar ones focusing on Vietnamese firms. Vietnam is chosen for two reasons. First, Vietnam has the highest percentage (97%) of people who rank managers as important or very important to the success of a company which makes it more likely to believe in the existence of a relationship between human capital of the chairmen and performance of firms (Wakerfield et al., 2016). Second, Vietnam is a newly opened market that is receiving increasing attention globally so that this research can be helpful for those who are considering investing in Vietnamese firms.

II. Theory and Literature Review

In economic literature, the idea of human capital was first mentioned by Adam Smith. His work discusses that "acquired and useful abilities of all the inhabitants or member of society during his education, study, or apprenticeship" is a type of capital because it costs an expense and returns profits (Smith, 1776). Also, an investment in human capital is argued to be similar to an investment in material capital (Pigou, 1928). Since 1930, several economists have continued studying human capital to see what it really is and to learn about its relationships with other economic factors. One of the most significant factors is education. Education is debated to become more profitable as it becomes more advanced which leads to the motive to obtain more education and acquire more knowledge for economic gain (Walsh, 1935). Years of training are another important human capital investment as it returns higher earnings (Mincer 1958). During the 1960s, human capital became a commonly studied topic in economics. Some other investments that enhance the human capital are researched during this period such as investment in health and internal migration. Schultz (1960) even argued further that the growth of human capital is the most distinctive feature of the economic system and he emphasized the importance of human capital in models of economic growth. In short, economists have discovered some of the most fundamental types of investment

in human capital and also confirmed a significant and positive relationship between these investment and the productivity of a worker.

Besides the human capital theory, it is useful to adopt the Cobb-Douglas production function as a basis for this research project (Cobb- Douglas). This is a particular form of the production function which is used to represent the relationships between the inputs (Labor and Capital, normally) and the amount of outputs that can be produced by these inputs:

$$Y = A.L^{a}K^{1-a}$$

$Y =$ Total amount of output
$A =$ Total factor productivity
$L =$ Total labor input
$K =$ Total capital input
$a =$ Output elasticity of Labor
$1 - a =$ Output elasticity of Capital

From this function, we can see that president plays a key role in deciding the total output of the firm. This is because a president can make the decision to buy or to sell capital and also has the authority to hire or to fire employees for the company. As a result, it is reasonable to believe that the president has a great impact on the performance of a firm.

Based on the theory of human capital and Cobb-Douglas production function, this research project aims to explore the relationship between human capital of chairmen and performance of firms. The hypotheses of the project are:

1) Firms have higher relative profitability compared to other firms in the industry when their presidents have higher education.

2) The more years of tenure that presidents serves, the higher the relative profitability of their firms compared to others in the same industry.

In fact, there are reasons to expect a significant and positive relationship between investment in human capital of chairmen and profitability of firms. Economists have found that some returns of investment in human capital relate directly to the ability of a manager. Two of the most significant ones are “allocative effect” and “problem solver effect”. Allocative effect is the positive effect that education has on the ability of an individual to acquire and process information about costs and resources to have the most efficient allocation (Welch, 1970). The problem solver effect is the impact that education, as an investment in human capital, has on an individual’s capability of using the resources under his command and approaching to a broader set of possible solutions for any problem (Michael Gibbons and Ron Johnston, 1974). Both effects are essential for a manager as he must make several important decisions during his tenure, given problems that his company must face. Apparently, having advanced education will be beneficial for not only a manager but also his or her company. In fact, many works have confirmed management as a main reason for the success or failure of a firm. For example, ineffective management was a major cause for the low profitability and slow innovativeness of UK industry (Walter Ellis, 1996).

There are also reasons not to expect a positive and significant relationship between the human capital of chairmen and profitability of firms. As we know, each firm includes so many employees and managers and that their work can possibly affect to the performance of firms in a way that a single president is unable to control absolutely. This research looks at several firms at a point of time only which makes it difficult to control for a variety of other factors. For instance, the situation of the firm before the president came to power is not controlled in this work which makes it possible that the high profitability of a firm comes from the good work of the previous one instead of the current one. Moreover, a firm's profitability is determined by not only the internal forces but the external forces also. In fact, many factors from outside such as social changes, technological innovations, economic environment and political policy might substantially influence the performance of a firm. Consequently, a significant relationship between chairmen's human capital and profitability of firms might not be found.

In short, despite the fact that many research projects have been conducted in human capital, there has been less work done to explore the relationship between human capital of chairmen and profitability of firms especially for new markets like Vietnam. This paper seeks to answer the question of whether this relationship exists and if yes, what factors are driving it. The literature of human capital and the Cobb-Douglas production function are the major theories for this research.

III. Empirical Model:

In this research, I use OLS regression techniques to test the relationship between the performance of firms and human characteristics of chairmen. More specifically, the excess return on assets (EXCESSROA) is predicted as a function of a number of the chairmen's characteristics including many demographic ones.

$$EXCESSROA = a_1 + a_2(AGE) + a_3(TENURE) + a_4(SHARE) + a_5(BACHELOR) + a_6(MASTER) + a_7(DOCTORATE) + a_8(MALE) + a_9(STATE) + a_{10}(CEO)$$

The variables in this equation are defined in Table 1.

Data and Variable definitions:

The dataset in my project is a unique one that I acquired during my internship with a top financial institution in Vietnam, Bao Viet Holdings. It includes the data of different characteristics of chairmen such as their age, gender, year of experience, shareholding, position, and educational attainment. The dataset also consists of information about the average industry return on assets as well as the return on asset of 109 biggest publicly traded companies in Vietnam stock market in 2016. This dataset is collected privately by professionals of Bao Viet Holdings in order to analyze and give advice for investors.

Dependent variable:

The dependent variable is the ratio of excess return on asset of a firm (compared to the average industry) over the average return on asset of this firm's industry:

$$EXCESSROA = [ROA(i) - ROA(industry)] / ROA(industry)$$

Table 1: Description of Regression variables: All Variables Collected in September 2016

Variable	Description	Expected sign
Dependent variable		
EXCESSROA	The excess return on assets of a firms compare to that of industry average	
Independent variables		
Quantitative variables		
AGE	A president's age at the date of data collecting	
TENURE	The number of years a president has served at this position in the firm.	Positive
SHARE	The percentage of shares that a president is holding or representing in the firm	
Qualitative variables		
Educational attainment		
BACHELOR	0= No Bachelor degree 1= Bachelor degree	Positive
MASTER	0= No Master degree 1= Master degree	Positive
DOCTORATE	0= No Doctorate degree 1= Doctorate degree	Positive
Gender		
MALE	0= Female 1= Male	
Company type		
STATE	0= Private company 1= State company	
Dual Leadership		
CEO	0= not a CEO 1= a CEO	

This dependent variable when converted to percentage will show how much a firm's return on assets is higher or lower than of the industry. Therefore, we would know how the ability to generate profit of each firm compares to other competitors in the same industry would change given changes in independent variables. This dependent variable is also useful in controlling for the differences among industries because it will compare companies working in the same industry only. Note here that the dependent and independent variables are defined in Table 1.

Independent variables:

There are 9 independent variables including 3 quantitative variables and 6 dummy variables in this model. The 3 quantitative variables are Age, Years of tenure and Shareholding of chairmen in firms. The 6 dummy variables are proxies for important qualitative facts of the chairmen in this research: Gender (Male or Female), Educational attainment (Bachelor, Master, Doctorate), Type of company (State or Private) and Dual leadership (Chairmen and CEO). The table below defines these independent variables and indicates the expected relationship between them and the dependent variable based on the hypotheses.

Table 2 and Table 3 show the descriptive statistics for quantitative and dummy variables respectively.

Table 2: Descriptive Statistics of Quantitative Variables

Quantitative Variable	Mean	Standard deviation	Max	Min
Age	53.72477064	7.31167453	70	35
Tenure	7.697247706	6.256114916	28	1
Shareholding	22.88771927	19.51275602	79.07	0.03
Excess ROA	22.88771927	9.356922168	51.5	-28.6

From Table 2, we can see that there is a big difference among these chairmen in the age (70 is the oldest when 35 is the youngest), tenure (28 year is the longest tenure when 1 year is the shortest) and shareholdings (79.09% is the biggest when 0.03% is the smallest). From Table 3, we can see that the majority of chairmen are male (98 out of 109) and has a bachelor (104 out of 109) or even a master degree (72 out of 109). However, only a few have achieved a doctorate degree

(11 out of 109). In most companies, the president does not hold the position of CEO as there are only 26 out of 109 have the dual leadership.

Table 3: Descriptive Statistics of Dummy Variables

Dummy Variable	Total samples
Male	98
CEO	26
State	45
Bachelor	104
Master	72
Doctor	11

IV. Results and Conclusion

Table 4: The Results of the Regression

Variable	Coefficient	Std Error	t-Statistics	Prob
C	61.89251	38.49747	1.67077	0.1111
CEO	-1.88756	2.21512	-0.85212	0.3962
COLLEGE	1.510601	3.971001	0.380408	0.7045
DOCTOR	4.95586	2.422946	2.045386	0.0435
MALE	-7.44224	2.39096	-3.112658	0.0024
MASTER	-2.93614	1.936359	-1.516322	0.1327
SHARE	-0.095084	0.045566	-2.086734	0.0395
STATE	-2.117729	1.933502	-1.095282	0.2761
TENURE	-0.156035	0.151294	-1.031334	0.3049
AGE	-1.744267	1.489365	-1.171148	0.2444
AGE^2	0.015017	0.014087	1.065951	0.2891

R-squared	0.269079
Adjusted R-squared	0.194495

From Table 4, we find a significant impact of DOCTOR, MALE and SHARE on the performance of the firms. DOCTOR and SHARE are significant at 5% level while being male is significant at 1% level. For the first one, having a doctor as president has a positive effect on the performance of a firm in comparison with other competitors in the industry as it increases the excess ROA of a firm to nearly 5%. MALE and SHARE also have a statistically significant impact on the excess ROA of a firm. Having a male president has a negative effect on the performance of a firm as it decreases the excess ROA to as many as 7.44%. Finally, the number of shares a manager

holds is also statistically significant. Table 3 shows that increasing the shareholding by 1% will decrease the excess ROA by 0.09%. Other than these 3, other independent variables are not statistically significant.

Table 5: Residual Diagnostic Tests

	Null hypothesis	**F-statistics**
Jarque-Bera test for normality	Residuals are normally distributed	271.02***
White test for heteroskedasticity	Residuals are homoscedastic	0.65

Table 5 shows the residual diagnostic test results for heteroskedasticity and normality. The null hypothesis of Jarque-Bera test for normality is rejected at 1% significant level. This indicates that the residuals are not normally distributed. From the plot of residuals, I have found that there are two companies that experience unexpectedly high residuals, which lead to the non-normality of the residuals. In order to get unbiased estimators, after identifying the outliers, I include the dummies for those two companies and the results show that the residuals become normally distributed and homoscedastic, allowing for appropriate statistical inference from the model. On the other hand, the White test suggests that the null hypothesis of homoscedasticity of the residuals cannot be rejected at 5% significant level.

From the results of the regression, the theory of human capital is supported in this research as it shows that having a doctorate degree is both statistically significant and positive. Although COLLEGE and MASTER do not show the same results, they do not go against the theory. The insignificant result of COLLEGE and MASTER can be explained by the fact that almost every president (104 out of 109) has a bachelor degree while a majority have a master degree (72 out of 109). Therefore, these two educational attainments are not enough for a president to create a significant difference to the performance of his firm in comparison with others in the same industry. Consequently, this result gives incentive for Vietnamese firms to hire doctors to be their chairmen, for people who want to be a president to go get a doctorate degree and also for investors to find companies that have presidents with a doctor degree to invest in.

Another implication of the result is that the number of share a chairmen holds does matter. It is shown that the more shares a president represents or possesses, the worse his/her company's ROA is. There are two possible explanations for this finding. The first one is that in hard times, many companies decide to give the managers more share in order to incentivize them to perform better. The second may come from the fact that having too many shares makes a president to focus too much on his own assets instead of other stakeholders' benefits which can lead to a less successful performance because an unequal benefit will discourage other people to work their best for the company. Put into the situation of these Vietnamese firms in 2016, which is a good year for numerous companies as the majority see growing revenues and profits, the latter explanation fits better.

The result also suggests that gender of presidents shows a significant impact on the performance of firms as well. Chairwomen have a better performance compared to chairmen as having chairmen decreases the excess ROA of a firm by more than 7%. However, possible explanation is that in the data set, only a minority of presidents are female (11 out of 109) and most of them are from the dominant companies. This result, however, suggests that there should not be any gender discrimination since having a female president is potentially a better option.

The result, however, does not support the second hypothesis that the more years of tenure a president serves, the higher the relative profitability of the firms compared to others in the same industry. It can be explained by the fact that this research does not control for other external effects to the firms as well as does not keep track for a longer period of time.

For future research, we can include a better dataset with the record of these companies through a period of time so that we can do a panel analysis. This will help answer several questions that cannot be answered by cross sectional analysis such as whether the performance of firms completely depends on the present president or it comes as the heritage of the previous one. Also, having the information about more companies may allow us to have dummy variable for each industry so that we can analyze if there exists a more significant effect of human capital in human intensive industry such as Technology. Finally, different profitability measurements other than ROA should be used to evaluate the performance of firms.

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